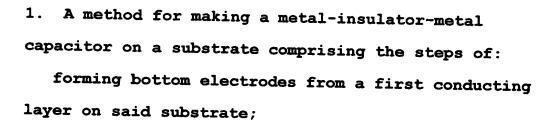
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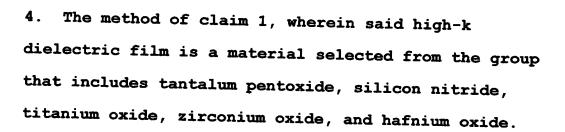
depositing a first wide-band-gap insulating layer on said bottom electrodes;

depositing a high-k dielectric film over said wideband-gap insulating layer;

depositing a second wide-band-gap insulating layer over said high-k dielectric film;

forming top electrodes from a second conducting layer on said second wide-band-gap insulating layer.

- The method of claim 1, wherein said bottom
 electrodes and said top electrodes are formed from a material selected from the group that includes titanium nitride, tantalum nitride, tungsten nitride, ruthenium, iridium, iridium oxide, and platinum, and is deposited to a thickness of between about 200 and 1000 Angstroms.
 - 3. The method of claim 1, wherein said first and said second wide-band-gap insulating layers are materials selected from the group that includes silicon dioxide and aluminum oxide.



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- 5. The method of claim 4, wherein said high-k dielectric film is deposited by physical vapor deposition.
- 6. The method of claim 4, wherein said high-k dielectric film is deposited by chemical vapor deposition.
- The method of claim 4, wherein said high-k
 dielectric film is deposited by atomic layer chemical vapor deposition.
- The method of claim 4, wherein said high-k
 dielectric film is deposited to a thickness of between
 about 50 and 800 Angstroms.
 - 9. The method of claim 4, wherein said high-k dielectric film is treated in a gas selected from the group that includes oxygen, nitrogen, nitrous oxide,

and ammonia, and rapid thermally annealed at a temperature of between about 300 and 700°C for a time of between about 1 and 260 seconds.

5 10. A method for making a metal-insulator-metal capacitor on a substrate comprising the steps of: forming bottom electrodes composed of titanium nitride on said substrate;

depositing a first wide-band-gap insulating layer

composed of aluminum oxide over said bottom electrodes;

depositing a high-k dielectric film composed of

tantalum pentoxide over said wide-band-gap insulating

layer;

depositing a second wide-band-gap insulating layer

15 composed of aluminum oxide over said high-k dielectric
film;

forming top electrodes composed of titanium nitride over said second wide-band-gap insulating layer.

- 20 11. The method of claim 10, wherein said bottom electrodes and said top electrodes composed of titanium nitride have a thickness of between about 200 and 1000 Angstroms.
- 25 12. The method of claim 10, wherein said first and said second wide-band-gap insulating layers composed of

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aluminum oxide have a thickness of between about 10 and 50 Angstroms.

- 13. The method of claim 10, wherein said high-k
 5 dielectric film composed of tantalum pentoxide has a thickness of between about 50 and 800 Angstroms.
 - 14. The method of claim 10, wherein said tantalum pentoxide is deposited by chemical vapor deposition.
 - 15. The method of claim 10, wherein said tantalum pentoxide is treated in a gas selected from the group that includes oxygen, nitrogen, nitrous oxide, and ammonia, and is rapid thermally annealed at a
- temperature of between about 300 and 700°C for a time of between 1 and 260 seconds.
 - 16. A method for making a metal-insulator-metal capacitor on a substrate comprising the steps of:
- forming bottom electrodes on said substrate;

 depositing a first wide-band-gap insulating layer

 over said bottom electrodes;

depositing a multilayer of high-k dielectric films over said wide-band-gap insulating layer;

25 depositing a second wide-band-gap insulating layer over said multilayer; forming top electrodes over said second wide-bandgap insulating layer.

- 17. The method of claim 16, wherein said bottom

 electrodes and said top electrodes are formed from a
 material selected from the group that includes titanium
 nitride, tantalum nitride, tungsten nitride, ruthenium,
 iridium, iridium oxide, and platinum.
- 10 18. The method of claim 17, wherein said material is deposited to a thickness of between about 200 and 1000 Angstroms.
- 19. The method of claim 17, wherein said multilayer of
 high-k dielectric films is composed of materials
 selected from the group that includes tantalum
 pentoxide, silicon nitride, titanium oxide, zirconium
 oxide and hafnium oxide.
- 20 20. The method of claim 17, wherein each layer of said multilayer of high-k dielectric films is treated in a gas selected from the group that includes oxygen, nitrogen, nitrous oxide, and ammonia, and rapid thermally annealed at a temperature of between about
- 25 300 and 700°C for a time of between about 1 and 260 seconds.